



Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) A method for automated picking of animal cell colonies using an apparatus, comprising:
 - a) providing a picking head comprising a plurality of hollow pins, the picking head being movable about the apparatus using positioning motors;
 - b) placing a sample container including a plurality of animal cell colonies held in a medium onto the apparatus, and also a dispensing container;
 - c) using machine vision and image processing to identify animal cell colony locations in the sample container;
 - d) moving the picking head to above the sample container;
 - e) picking an animal cell colony by aligning one of the hollow pins with one of the animal cell colony locations, introducing a distal end of the hollow pin into the medium proximate to the animal cell colony by an offset distance, and aspirating the animal cell colony into the hollow pin; and
 - f) dispensing the picked animal cell colony by moving the picking head to above the dispensing container and expelling the picked animal cell colony into the dispensing container.
2. (Original) The method of claim 1, wherein the picking step comprises repeating the aligning and aspirating steps for multiple ones of the hollow pins to pick multiple ones of the animal cell colonies.
3. (Original) The method of claim 1, wherein the dispensing container comprises an array of wells separated by a characteristic spacing and the hollow pins are also

arranged with the characteristic spacing so that the expelling step can be performed in parallel for all the hollow pins.

4. (Previously Presented) The method of claim 1, wherein the animal cell colonies are adhered to the sample container and immersed in the medium, and wherein after the introducing step the distal end of the pin is agitated relative to the sample container so as to produce turbulence in the medium to detach the animal cell colony at that location prior to performing the aspirating step.
5. (Original) The method of claim 1, wherein the animal cell colonies are stained with a contrast enhancing agent to assist the image processing.
6. (Original) The method of claim 1, wherein the animal cell colonies are stained with a fluorescent agent to assist the image processing.
7. (Original) The method according to claim 1, wherein the plurality of animal cell colonies comprise or express a biological molecule of interest.
8. (Original) The method of claim 7, wherein the biological molecule of interest is selected from the group consisting of: a peptide, a polypeptide, a nucleic acid, or a glycosylated or unglycosylated protein.
9. (Original) The method according to claim 8 wherein the protein of interest is a biopharmaceutical protein.
10. (Currently Amended) An apparatus for picking animal cell colonies comprising:
 - an apparatus bed useful for arranging a sample container comprising a plurality of animal cell colonies held in a medium;
 - a camera useful for capturing images of the animal cell colonies;
 - image processing software useful for identifying animal cell colony locations from captured images; and

a picking head movable around the apparatus bed using positioning motors to animal cell colony locations identified by the image processing software, wherein the picking head comprises a plurality of hollow pins connected to a drive operable to ~~introduce~~ **that introduces** a distal end of the hollow pins into the sample container offset from an animal cell colony, and further connected through fluid conduits to a pressure controller that is operable to aspirate quantities of the medium from the sample container into the hollow pins, to retain the medium and to expel it when required, thereby allowing animal cell colonies to be picked from the medium **by the hollow pins at an offset distance.**

11. (Original) The apparatus of claim 10, wherein the picking head further comprises a drive mechanism useful for causing lateral oscillation of distal ends of the pins to facilitate detachment of animal cell colonies adhered to the sample container.
12. (Original) The apparatus of claim 11, wherein the drive mechanism is configured to cause rotary motion of the distal ends of the pins.
13. (Original) The apparatus of claim 10, wherein the hollow pins are arranged in a characteristic spacing matched to a well plate standard spacing.
14. (Previously Presented) A method that comprises using the apparatus according to claim 10 for identifying an animal cell colony comprising or expressing a biological molecule of interest.
15. (Previously Presented) The method according to claim 14, wherein the biological molecule of interest is selected from the group consisting of: a peptide, a polypeptide, a nucleic acid, or a glycosylated or unglycosylated protein.
16. (Previously Presented) The method according to claim 14, wherein the glycosylated or unglycosylated protein of interest is a biological molecule.
17. (Previously Presented) The method of claim 1, wherein the animal cell colonies are held suspended in the medium.

18. (Previously Presented) The method of claim 1, wherein the animal cell colony comprises a plurality of cells.
19. (Previously Presented) The method of claim 1, wherein the animal cell colony consists of a single cell
20. (Currently Amended) A method that comprises using the apparatus according to claim 10 for picking animal cell colonies held suspended in a medium, **wherein the method comprises the steps of picking an animal cell colony by aligning one of the hollow pins with one of the animal cell colony locations, introducing a distal end of the hollow pin into the medium proximate to the animal cell colony by an offset distance, and aspirating the animal cell colony into the hollow pin.**
21. (Currently Amended) A method that comprises using the apparatus according to claim 10 for identifying and picking an animal cell colony comprising a plurality of cells, **wherein the method comprises the steps of picking an animal cell colony by aligning one of the hollow pins with one of the animal cell colony locations, introducing a distal end of the hollow pin into the medium proximate to the animal cell colony by an offset distance, and aspirating the animal cell colony into the hollow pin.**
22. (Currently Amended) A method that comprises using the apparatus according to claim 10 for identifying and picking an animal cell colony consisting of a single cell, **wherein the method comprises the steps of picking an animal cell colony by aligning one of the hollow pins with one of the animal cell colony locations, introducing a distal end of the hollow pin into the medium proximate to the animal cell colony by an offset distance, and aspirating the animal cell colony into the hollow pin.**
23. (New) The method of claim 1, wherein said offset distance is in a range between about 0.1 mm and about 4.0 mm.

24. (New) The method of claim 23, wherein said offset distance is from about 0.25 mm to about 1.0 mm.
25. (New) The apparatus of claim 10, wherein said offset distance is in a range between about 0.1 mm and about 4.0 mm.
26. (New) The apparatus of claim 25, wherein said offset distance is from about 0.25 mm to about 1.0 mm.
27. (New) The method of claim 20, wherein said offset distance is in a range between about 0.1 mm and about 4.0 mm.
28. (New) The method of claim 27, wherein said offset distance is from about 0.25 mm to about 1.0 mm.
29. (New) The method of claim 21, wherein said offset distance is in a range between about 0.1 mm and about 4.0 mm.
30. (New) The method of claim 29, wherein said offset distance is from about 0.25 mm to about 1.0 mm.
31. (New) The method of claim 22, wherein said offset distance is in a range between about 0.1 mm and about 4.0 mm.
32. (New) The method of claim 31, wherein said offset distance is from about 0.25 mm to about 1.0 mm.